

PERMITS FOR AQUATIC PLANT CONTROL

APPLICANT INFORMATION GUIDE



Table of Contents

1.0	INTRODUCTION	1
2.0	TYPES OF AQUATIC PLANTS	1
2.1	Algae	1
2.2	Vascular Plants	2
	i) Submergents	2
	ii) Emergents	2
	iii) Eurasian Water Milfoil	2
3.0	CONTROL METHODS	3
3.1	Physical/Mechanical Control	4
	i) Hand-pulling, Cutter-bar Devices and Mechanical Harvesting	4
	ii) Bottom Barriers	4
	iii) Dredging	5
	iv) Drawdown	5
3.2	Biological Control	5
3.3	Chemical Control	5
4.0	LEGAL REQUIREMENTS	6
4.1	Protection of Fish Habitat	6
4.2	Pesticides	6
4.3	Licenses	7
4.4	Permit	7
4.5	Aquatic Plant Control in Federal Waters	8
5.0	MNR/DFO GUIDELINES FOR AQUATIC WEED CONTROL	9
5.1	Identification of Fish Habitat	9
5.2	Timing	9
5.3	Size and Configuration of Treated Areas	10
5.4	Examples	11
6.0	SUGGESTED READINGS:	14

List of Appendices

Appendix A	Water Extermination Permit Guide	15
Appendix B	Multiple Property Permit Procedure	16
Appendix C	Guide for Completing Application Form	18
Appendix D	Map to Locate Property	20
Appendix E	Map Detailing Treatment Area	21
Appendix F	Guide to Herbicide Rates and Restrictions	22
Appendix G	Herbicide Calculations	25
Appendix H	Ontario Ministry of Environment Regional Offices	28
Appendix I	Ministry of Natural Resources District Offices	27
Appendix J	Aquatic Plant Identification	30
Appendix K	Working Around Water - MNR Factsheet	40
Appendix L	It's In Your Hands	43
Appendix M	Application Checklist	47
Appendix N	Suggested Notice Form	48

1.0 INTRODUCTION

Aquatic plants are a natural part of a healthy aquatic ecosystem. They will grow wherever adequate sunlight and suitable nutrients and water quality conditions exist.

Aquatic plants are beneficial. They augment natural dissolved oxygen levels, bind available nutrients, and provide food and habitat for many aquatic organisms. For example, many fish species use aquatic plants as spawning, nursery and feeding areas and, consequently, aquatic plants comprise an important component of fish habitat. Aquatic plants camouflage nesting sites and provide protective cover for waterfowl, fish, amphibians, reptiles and other marsh dwellers. Additionally, their seeds and tubers provide a source of food for waterfowl and other herbivores. Aquatic plants also help to stabilize shorelines and lake bottoms, reducing erosion and helping to maintain water quality.

In excessive amounts, however, aquatic vegetation can have a detrimental effect on the ecosystem. Algal "blooms" and dense submerged plant communities can create such large daily fluctuations in the dissolved oxygen levels in the water that fish may die of suffocation. Certain blue-green algal blooms, capable of producing potent toxins, may also pose a health hazard to humans and other animals drinking the water. In addition, excessive aquatic vegetation can interfere with the intended uses of the water (e.g., swimming, boating, fish rearing, fire fighting, crop irrigation, livestock watering, etc.). When this occurs, limited control of aquatic vegetation may be appropriate.

2.0 TYPES OF AQUATIC PLANTS

Aquatic plants can be divided into two broad categories: algae, which may be found as single-celled or multi-celled filamentous species; and vascular plants which generally possess true leaves, stems and root systems. To help identify the more common nuisance aquatic plants, diagrams are provided in Appendix J.

2.1 Algae

Free-floating, single-celled algae are the simplest plant forms that live in a water environment. Each cell is a complete plant in itself. In the presence of nutrients (especially phosphorus and nitrogen) and sunlight, these algae will multiply rapidly, leading to the production of algal "blooms" which can cause the water to appear "pea-soup" green or brownish. Nutrients may be introduced into the water naturally (through the decomposition of leaf litter or aquatic plants) or artificially (through leakage of faulty septic systems, run-off and seepage from farm livestock operations or excessive lawn fertilization).

Filamentous algae are made up of a series of cells joined end-to-end which give the algae a thread-like appearance. They are also known as "pond scum" because they form greenish mats upon the surface of the water. Early in the spring, filamentous green algae may grow prolifically in ponds, but often die back naturally at the end of the summer.

Cladophora, a branched, filamentous, green alga, is a problem in many beach areas of the Great Lakes, including Lakes Huron, Erie, and Ontario. Plant filaments, growing on rocks underwater, are broken off and washed up in large quantities on the beaches. Decomposition of this debris often causes offensive odour problems.

Chara (muskgrass) and *Nitella* (stonewort) are also branched, filamentous algae, but superficially resemble vascular plants, although they do not actually possess true roots, stems or leaves. In these algae, calcium carbonate from the water is incorporated into the cell walls to give them rigidity. There is sufficient calcium carbonate to leave a white powder when the plants are removed from the water and dried. *Chara* is a problem in many hard water trout ponds, where it may grow up to 3–4 metres in length under suitable conditions. These plants are difficult to control with moderate doses of pesticides and dense growths should be removed by physical or mechanical means. However, since each filament fragment can regenerate into a new plant, re-invasion following fragmentation during physical or mechanical removal can also be a problem.

2.2 Vascular Plants

i) Submergents

Several types of pond weeds, Eurasian water milfoil and tape grass are some of the more common submergent aquatic plants found in Ontario. These are rooted plants that grow mostly or completely below the surface of the water. They are generally flaccid and depend upon the water for support. Flowers, if present, may extend above the surface of the water.

ii) Emergents

Some of the common emergent aquatic plants found in Ontario are cattails, bulrushes, pickerelweed, duckweed and water lilies. These plants are characterized by having rooted bases below the surface of the water, with flowers and most of the leaf-stem tissue above the surface of the water.

iii) Eurasian Water Milfoil

Many of today's problems in environmental management relate directly to the presence of exotic plant imports. These are non-native plants that have been introduced either intentionally or accidentally into Canada.

One aquatic invader, well-known in Canada is Eurasian water milfoil. This plant, native to Europe and Asia, was found in 1902 in Chesapeake Bay, Maryland, and has since spread throughout North America. Its first recorded presence in Canada was a specimen collected from Rondeau Provincial Park in 1961. The plant was not widely recognized as a nuisance until the early 1970's when it became troublesome in the Kawartha Lakes in Ontario, in Quebec and in British Columbia.

Eurasian water milfoil is an extremely aggressive plant that reproduces largely by fragmentation. It grows rapidly and crowds out the existing native plants. It can invade water from 1 to 10 metres deep. When the stems reach the surface, canopy formation occurs through profuse branching. In temperate climates, the plant exhibits a rapid growth phase in early spring. It reaches the water surface by mid to late June and causes severe interference with recreational water uses. Since it can thrive under a variety of environmental conditions, it has become widespread in lakes in southern Ontario. However, it does not commonly occur in soft-water Precambrian Shield lakes.

3.0 CONTROL METHODS

With any pest, it is imperative that the problem is properly identified before a control method is selected. If you have any doubts about the identity of your pest plants, you can contact the Pesticides Officer at the nearest Regional Office of the Ontario Ministry of Environment (Appendix I).

A wide range of control methods including physical/mechanical, chemical and biological have been practised around the world. No single method is best in all situations, all have advantages and disadvantages. Consequently, a careful assessment of the various methods in a particular situation and the ecological value of local aquatic plants is essential before any attempt at control is undertaken. Primary consideration should always be given to rectifying the main cause of the problem, namely, to reduce the amount of nutrients entering the water.

In order to protect the aquatic environment, some proposals for aquatic plant removal are evaluated by federal and provincial agencies. Where chemical control is being considered, approval must be obtained from the Ministry of Environment. Approval for some physical or mechanical plant control projects must be obtained from the Ministry of Natural Resources. Contact your district MNR office to determine whether a permit will be required.

Control Method	Approval Required	Approving Agency
chemical	Yes	Ministry of Environment
raking/hand pulling	Yes ¹	Ministry of Natural Resources
harvesting	Yes ¹	Ministry of Natural Resources
other methods	Yes ¹	Ministry of Natural Resources

¹For some areas of the province, a permit is not required for mechanical removal of small areas of aquatic weeds.

3.1 Physical/Mechanical Control

i) Hand-pulling, Cutter-bar Devices and Mechanical Harvesting

A variety of devices have been developed in recent years to permit the cutting of aquatic plants. Most have a small cutter bar and are operated by hand. These devices are light and portable but should not be used indiscriminately.

The use of cutter-bar devices or hand-pulling can be effective in removing plants from small, near shore areas. They are not well-suited to removing plants over large areas such as extended boat channels.

Mechanical harvesters can remove plants effectively, especially in offshore areas. However, they may be difficult to use in shallow nearshore areas, particularly where they must be manoeuvred around obstructions. They may also disturb the sediment causing increased turbidity, nutrients and contaminants to be released into the water. Therefore, special care should be taken to ensure the lake bottom is not disturbed.

Harvesting is usually done by means of a submerged cutting bar and a conveyor loading system. The main advantage of harvesting is that it removes the plants and consequently the nutrients that would be released into the aquatic system from the decaying plant matter. However, aquatic plants may have to be harvested several times in one season.

It is essential to remove harvested plants from the water to prevent problems of oxygen depletion when the plants decompose and spreading/re-rooting of plant fragments. Cut plants can be composted and used as a soil conditioner or garden mulch. Where harvested plants cannot be used beneficially the property owner can dispose of them along with normal household wastes.

ii) Bottom Barriers

The growth of aquatic plants can be largely prevented by placing a sheet of dark, heavy-duty material over an area of the lake bottom. This acts as a barrier between the sediments and the water column, impeding plant growth. It also minimizes root attachment and re-entry of nutrients into the water column.

The use of bottom barriers can provide effective, long-term plant control. They must be cleaned periodically, particularly in turbid water, to prevent plants from re-establishing on any silt or organic matter that may settle on top of the barrier.

Bottom barriers are commercially available in a variety of materials such as plastic or silicone rubber. They should be made of durable material and be constructed to allow gas from decomposing plants to escape through the barrier.

iii) Dredging

Dredging removes aquatic plants and nutrient-rich sediments. It can also be used to deepen a waterbody, thereby reducing the amount of light reaching the bottom. This restricts the area which can be colonized by aquatic plants.

Dredging can provide effective plant control but can result in a number of harmful environmental effects. For example, dredging may destroy valuable spawning areas for fish and the disturbance of sediments may result in increased turbidity and release of nutrients and contaminants into the water. Disposal of the dredged material may also pose a problem, especially if it is contaminated.

Due to environmental concerns, dredging is not normally an acceptable method of aquatic plant control in public waters. Its use may be considered only where the removal of sediment as well as plants is authorized. Dredging may be used to create or maintain boat channels or drainage ditches, and it can provide effective plant control in private ponds.

iv) Drawdown

Aquatic plants require relatively stable water levels to survive and grow. In some cases it may be possible to reduce plant abundance by changing water levels. This technique, called "drawdown", involves lowering the level of a waterbody during the winter to expose plants to freezing and desiccation. However, the effectiveness of drawdown is variable.

Drawdown can result in harmful environmental effects by destroying aquatic life, other than plants, in the waterbody. For example, fish eggs and fish food organisms may also be frozen or desiccated. Drawdown may also affect downstream waters by releasing disturbed sediment and debris, particularly if water levels are lowered too quickly.

The use of drawdown is not an option in public waters. It may be considered only where the waterbody being treated is a pond located entirely on one's own property.

3.2 Biological Control

Biological control involves the use of a biological agent (e.g. a natural predator) to control an undesirable pest species. However, these biological agents (fish, pathogens, insects, etc.) are of necessity exotic imports and in view of past problems, the Ontario government is extremely cautious about approving the use of these agents and it is generally not recommended.

3.3 Chemical Control

The word pesticide is used as an umbrella term and includes herbicides (control of plants), insecticides (control of insects), and rodenticides (control of rats and mice) etc. Many herbicides are effective only against particular plants. Therefore it is essential to identify

plants before choosing a herbicide to ensure that it will be effective. Since the plants are normally not removed from the waterbody, herbicide treatment results in the release of nutrients into the aquatic environment when the plants decompose. These nutrients in turn serve as food for next year's crop and may also contribute to the development of severe algal "blooms".

Not all species of aquatic vegetation can be controlled by currently registered herbicides. Tape grass is an example of an aquatic plant which is resistant to herbicidal activity. When resistant and susceptible plant species occur together and jointly create a problem, an integrated pest management scheme, incorporating different control methods, must be sought, rather than one using pesticides alone.

4.0 LEGAL REQUIREMENTS

4.1 Protection of Fish Habitat

Aquatic plants play a key role in aquatic ecosystems. They are an important component of fish habitat, providing spawning, nursery and feeding areas for many species. Consequently, plant removal can seriously harm fish populations which depend on the presence of plants.

Section 35(1) of the federal *Fisheries Act* states that "*no person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat*". If you are planning on removing aquatic plants through mechanical methods, and if there is any possibility that removal of aquatic plants could alter, harm or destroy fish habitat, you should seek a letter of advice or an authorization from the Department of Fisheries and Oceans under the federal *Fisheries Act*. Contact your local Conservation Authority or local Ministry of Natural Resources Office when planning any work project in or around water.

Where the proposed plant control would involve physical or mechanical control methods, a work permit may be required. A list of MNR District Offices is included in Appendix I.

4.2 Pesticides

Pesticides must be registered under the federal *Pest Control Products (PCP) Act* and classified under the provincial *Pesticides Act* before they are legal for sale and use in Ontario.

The pesticide label which carries a registration number under the PCP Act, is a legal document. The pesticide must only be used in the manner specified on the label for the purposes specified on the label. **ANY OTHER USE IS ILLEGAL. ALWAYS READ THE LABEL CAREFULLY.**

4.3 Licences

The *Pesticides Act*, Subsection 5(1), provides that: "*no person shall engage in, perform, or offer to perform an extermination except under and in accordance with a licence of a prescribed class...unless exempt under the regulations.*"

Therefore, unless exempt, an exterminator's licence (Aquatic Vegetation Licence, or a Class 1 or Class 3 endorsed licence under the old exterminator licencing system) is required by anyone applying a pesticide to water in Ontario. Furthermore, if the person is in the business of performing exterminations, or receives any payment for an extermination, an Operator's Licence is also required.

An exterminator's licence is not required where a person wishes to treat a pond located wholly within the boundaries of their property or the property of their full-time employer if there is no outflow at any time beyond their property limits.

The licensing system ensures that people are educated about the proper storage, handling, and use of pesticides, and their impact on the environment.

4.4 Permit

Subsection 7(2) of the *Pesticides Act* provides that: "*no person shall perform a water extermination unless the person is the holder of a permit issued by the Director [under the Act] for the water extermination or is exempt under the regulations*".

Therefore, unless exempt, a **Permit to Purchase a Pesticide and/or Perform a Water Extermination** must be obtained before any aquatic pesticide can be legally purchased or applied to surface waters (e.g. ponds, lakes, rivers), in Ontario. **Note: A limited vendor can sell only a schedule 3, 4 or 6 pesticide to a person who is exempt from a licence and/or permit.**

The permit system prevents excessive and indiscriminate use of pesticides by ensuring proper pesticide selection; by authorizing the amount of pesticide that may be purchased and used; by setting forth conditions under which it may be used; and by delineating the treatment area.

All applications for a **Permit to Purchase a Pesticide and/or Perform a Water Extermination** are reviewed by staff from the Ontario Ministry of Environment. If valid reasons exist, the Director under the *Pesticides Act* may deny the permit or impose certain conditions. The applicant may appeal by contacting the Director and may request a hearing before the Environmental Appeal Board.

The acquisition of a permit or a licence does not divest any individual or commercial applicator of the responsibility for any undesirable consequence arising from a treatment. Anyone applying any substance without the authority of a licence or permit, or violating

any of the terms and conditions of a permit, is guilty of an offence under the *Pesticides Act* and upon conviction, is liable to a fine.

ALL OF THE TERMS AND CONDITIONS SET FORTH ON THE PERMIT MUST BE STRICTLY FOLLOWED. Neighbours must be notified and must agree prior to the water extermination. The size of the treatment area, and the rate and amount of pesticide authorized for use must not be exceeded. Signs must be posted if required and any other terms or conditions must be complied with, as stipulated on the permit.

For information on how to obtain a **Permit to Purchase a Pesticide and/or Perform a Water Extermination**, see Appendix A, "Water Extermination Permit Guide" and Appendix B, "Multiple Property Permit Procedure".

4.5 Aquatic Plant Control in Federal Waters

The Ministry of Environment (MOE) recognizes that the lands known as the Rideau Canal fall under the ownership, administration and control of the federal government. Although this ownership has existed since July 1, 1867, in a recent Order-in-Council (December 8, 1993), the Province of Ontario, acknowledged federal ownership of the bed and determined the exact description of the waters of the canal and the connection lakes. These waters are set out in the attached "Table A". Accordingly, as owner of the bed of the Rideau, the Federal Crown has jurisdiction for management of any vegetation growing on the beds. This includes jurisdiction over the process of issuing permits and determining aquatic vegetation control methods. In the past, MOE has shared in the administration of the aquatic vegetation control permits by issuing the herbicide use permits according to the direction of both governments.

Rideau Canal has held public consultation sessions to develop the Canal's management plan. Concerns were expressed for the preservation of a healthy and natural environment that would enhance the heritage value of the Canal. As a result of this public concern and other research, Parks Canada will no longer permit the use of aquatic herbicides in the water of the Rideau Canal. All applications received by MOE will be returned and applicants advised to contact Parks Canada about federal permit requirements and alternative control methods at the following address;

Parks Canada, Rideau Canal Office
34a Beckwith Street, South
Smith Falls, Ontario
K7A 2A8
(613-283-5170)

For information concerning vegetation control, all applicants should contact Parks Canada, Rideau Canal Office.

TABLE A: WATERS OF THE RIDEAU CANAL SYSTEM

North of a line from the south of Bell Island across to south of the marina

Kemptville Creek to Hwy. 43 Bridge

The Rideau River only to Hoggs Back Dam, then the Rideau Canal part to the Ottawa River

Big Rideau Lake	Clear Lake	Cranberry Lake
Benson Lake	Dog Lake	Indian Lake
Little Cranberry Lake	Loon Lake	Mosquito Lake
Newboro Lake	Opinicon Lake	Pollywog Lake
Sand Lake	Stevens Creek	The Tay River
The Tay Canal to Gore Street in Perth		The Great Cataraqui River
The River Styx	Upper Rideau Lake	Whitefish Lake

5.0 MNR/DFO GUIDELINES FOR AQUATIC WEED CONTROL

NOTE: Applicants should ensure that their permit requests adhere to these guidelines.

5.1 Identification of Fish Habitat

Applicators should make every effort to identify and document the location of important fish habitat in the vicinity of areas proposed for treatment. Particular attention should be paid to the quality and quantity of spawning, nursery and feeding areas which could be affected by the treatment.

Special consideration should also be given to habitat types provided by plant species that may be in limited supply in the waterbody in question. For example, wetland areas should be identified and protected.

In some cases man-made areas such as boat channels and dock areas provide fish habitat which did not exist previously. Fish habitat in these areas must be protected to the same degree as habitat of natural origin.

5.2 Timing

Warmwater fish species require the spring and early summer period for spawning and early rearing activities. Removal of aquatic plants during this period may result in mortality to eggs and fry, and may disrupt the food web, thereby affecting young fish in particular.

In water supporting warmwater fish communities, plant control should be avoided until spawning and early rearing periods are complete. However, both the timing of local plant growth problems and the effectiveness of proposed control operations may be considered.

For example, chemical control of Eurasian milfoil may not be very effective if carried out after July 1.

In some cases the selective removal of dense plant growth in early spring to provide boat access in early summer (June) may precede fish spawning. Decisions as to the timing of control activities should therefore involve a consideration of the species of plants to be removed, the timing of plant growth problems, the fish community, and the prevailing weather conditions

To ensure that treatments do not affect fish spawning and to avoid applying pesticides late in the growing season, where they will be ineffective, the following start and end dates for pesticide application should be used.

Pesticide	Start Date	End Date
Citrine Plus Granular	June 21	August 31
Citrine-Plus Liquid	June 21	August 31
Aquashade	June 21	July 31 (submerged plants) August 31 (algae)
Reglone A	June 21	July 31
Aqua-Kleen	June 21	July 31 (submerged plants) August 31 (algae)
Gramoxone	June 21	October 31
Karmex	June 21	July 31
Amitrol-T	June 21	November 15

5.3 Size and Configuration of Treated Areas

It is impossible to specify criteria for determining acceptable plant control activities in all situations. However, some activities are not permitted, either because they are likely to contravene legislation of MNR policy, or because they may interfere with the proprietary rights of some other person, such as:

- removal of rare, threatened or endangered plant species
- removal of plants required during any life stage of vulnerable, threatened or endangered fish species
- removal of plants from areas containing the nests of migratory birds; removal after the nesting season may be acceptable
- treatment of areas outside the straight line extension of lot sidelines (Except for boat channels; lot configuration should also be considered)
- treatment of areas beyond the centerline of rivers and streams
- harmful disruption of adjacent littoral areas (e.g. movement of sediment in adjacent areas)

In addition, certain activities are generally not permitted because they are likely to have adverse effects on the environment, including local resources, such as:

- removal of significant wild rice stands
- complete removal of large blocks of aquatic vegetation (for details see Section 5.4 A)
- control of aquatic plants by methods judged unacceptable in these guidelines.

In general, the removal of plants should be kept to the minimum necessary to meet recreational needs (e.g. providing boat access or a swimming area) as opposed to removal for aesthetic reasons.

In area of heavy plant growth, boat channels accessing individual properties should generally be oriented perpendicular to the shoreline and should not exceed 6 metres in width. Boat channels serving a number of properties may need to be wider (see Section 5.4 A). Creation of a swimming area should not normally require clearing an area larger than 60 square metres (e.g. 6 m x 10 m).

Where plant growth is extensive, many landowners may wish to remove plants fronting their property. In order to prevent the removal of large blocks of vegetation, a limit on the proportion of each landowner's frontage in which the growth of plants may be controlled is suggested.

Removal of aquatic plants on a large scale, such as across entire frontages or bays, would invariably result in a loss of fish habitat and is not permitted.

5.4 Examples

It is impossible to describe acceptable plant control activities in every type of situation that might occur. However, indicated below are some examples of common situations together with some guidance in determining acceptable levels of plant control.

The guidelines provided in this section are intended to apply to waters with heavy plant growth, as in many areas of the Trent-Severn systems. Consequently, they represent maximum levels of plant control which may be appropriate in waters which contain extensive plant growth. They are not intended to apply to waters in which plant growth is limited, such as most waters on the Canadian Shield. The acceptability of plant control activities under conditions of limited plant growth must be determined on a site-specific basis.

A) Individual Properties

In waters with extensive plant growth, the area in which plant control is permitted for individual properties should generally be based on the frontage of each property. Recommended limits for plant control are as follows:

Frontage of Property	Maximum Width of Removal	Maximum Distance Offshore	Maximum Width of Boat Channel
>22 m	15 m	30 m	6 m
<22 m	8 m	30 m	6 m

The limits recommended here are designed to prevent removal of large blocks of vegetation while still permitting a reasonable amount of plant control by each property owner. In addition, the creation of alternating areas of vegetation and open water creates increased edge and increase fish habitat diversity.

The limits represent maximum areas in which plant control may be permitted. In many cases the treated area need not be as large as indicated here. However, in waters with heavy plant growth the potential ecological benefits of plant control should always be considered.

The boat channels referred to above are those serving individual properties. Boat channels are not included in the main treated areas describe above (i.e maximum 15 x 30m or 8 x 30m). They are calculated separately. However, if possible, boat channel should back on to the main treated area so as not to increase the frontage treated (see Figure 1). Boat channels can be as long as necessary in order to reach open water.

Where several adjacent properties are to be treated, a single boat channel can be shared among property owners. A general rule of thumb is one channel for every 5 properties (see Figure 2). For safety reasons these "community" channels usually need to be wider than those serving individual properties. However, they seldom must be wider than 8m.

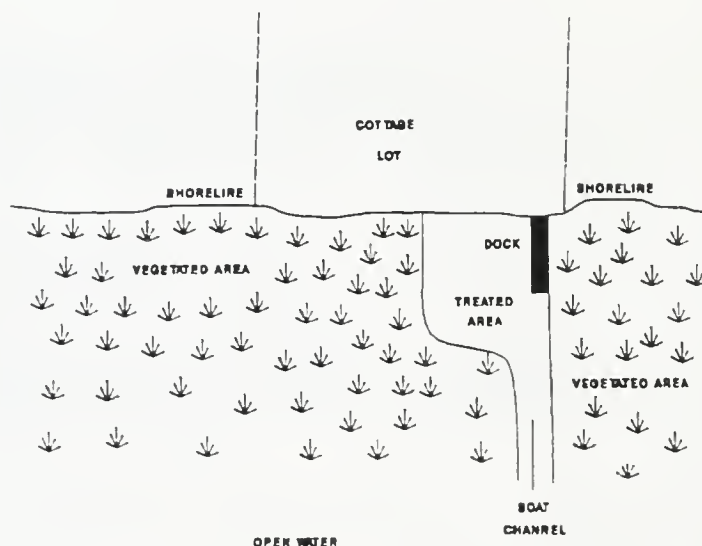


Figure 1 Boat Channel for a Single Property

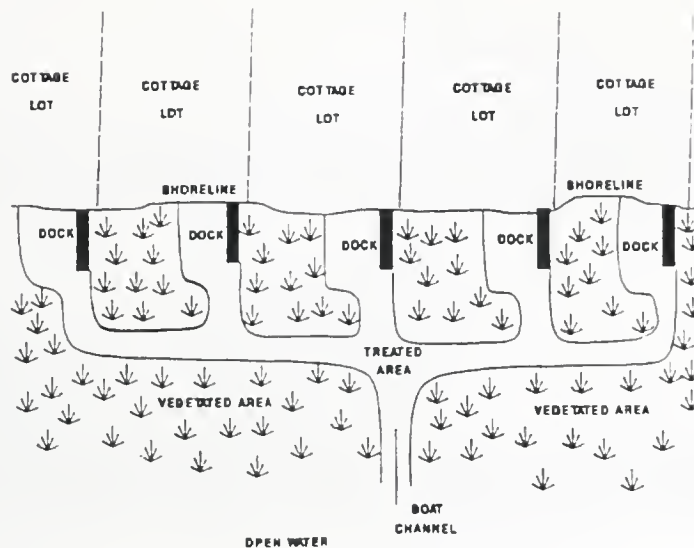


Figure 2. Community Boat Channel for up to Five Properties

B) Commercial Establishments

Extensive plant growth in the vicinity of commercial establishments (e.g. resorts, marinas) may restrict recreational opportunities for many people who depend on these establishments for water-based recreation. The ability to provide recreational and other benefits from nearshore areas may also seriously affect people's livelihoods.

Where these establishments are concerned, permissible plant control activities are determined on a case by case basis. As a general rule, in the case of lakeshore resorts only areas around beaches and those required for boating need be subject to plant control. The use of a common area for swimming should be encouraged. Large areas or bays should not be cleared of plants purely on the basis of aesthetic concerns.

C) Navigation Channels

In some waters it may be necessary to remove plants in navigation channels. This typically involved clearing channels sufficiently large for the safe movement of large boats. Many of these channels are located primarily offshore in deeper portions of the waterbody. Since the clearing of such channels is usually only required in waters containing very extensive plant growth, removal of aquatic plants in these deep channels will generally have a limited effect on fish habitat.

Given the potential impact of aquatic plants on navigation channels and the generally limited effect of plant removal on fish habitat, a good deal of flexibility is needed in determining permissible plant control activities for navigation purposes. However, plant

removal should generally be confined to buoyed areas or navigation channels as designated by the appropriate authority.

6.0 SUGGESTED READINGS

1. Publication #75, Guide to Weed Control, Ontario Ministry of Agriculture and Food
2. Farm Ponds, Ontario Ministry of Agriculture and Food
3. Working Around Water? Factsheet Series, Ontario Ministry of Natural Resources
4. Ontario Guidelines for Aquatic Plant Control, Ontario Ministry of Natural Resources and Department of Fisheries and Oceans. 1994.

Appendix A

Water Extermination Permit Guide

A **Permit to Purchase a Pesticide and/or Perform a Water Extermination** must be obtained each year before a person may purchase or apply an aquatic pesticide. This permit authorizes the use of a registered pesticide under specific conditions, and must be approved by the Ontario Ministry of Environment.

To obtain a permit the following must be submitted:

1. a completed application form;
2. a map identifying the location of the property in relation to the neighbouring properties and main roads (see Appendix D for example);
3. a sketch of the proposed treatment area showing:
(see Appendix E for example)
 - i) Ponds - length, width and average depth
- all intakes and outflows (within or beyond property boundaries)
 - ii) Lakes - size of the proposed treatment area
including length (along the shoreline).
width (distance into lake) and average depth. (See page 13 for the size of allowable treatment areas)

The completed application package should be forwarded to the Regional Pesticides Officer who is responsible for the county in which the proposed treatment will be done. See Appendix H. **Allow 6 weeks for processing.**

***PERMITS WILL NOT BE PROCESSED
UNTIL ALL THE REQUIRED INFORMATION IS RECEIVED.***

Please note that maps are required for our records and will not be returned. Applicants should therefore retain copies for future submissions.

Appendix B

Multiple Property Permit Procedure

Requests for water extermination permits which cover more than one property and which are performed either by the property owners themselves or by a licensed exterminator, must be accompanied by the following:

1. a completed application form;
2. a map identifying the location of the property in relation to the neighbouring properties and main roads (Appendix C);
3. a map of the proposed treatment area showing (Appendix D):
 - i) the location of all participating and non-participating properties - numbered to correspond to the list of names and signatures (see example below);
 - ii) the size of the treatment area: length (along the shoreline) x width (distance out into the lake from the shoreline) x average depth; (See page 13 for the size of allowable treatment areas)
 - iii) vacant lots, crown land, rights-of-ways or public accesses.
4. the name, home address, telephone number and original signature (photocopies not acceptable) of every participant.

EXAMPLE:

LOT#	NAME	ADDRESS	TELEPHONE #	SIGNATURE
1	M. Smith	R.R. #2, Kingston	(613)123-1234	_____
2	J. Doe	48 2 nd St., Ottawa	(613)321-4321	_____
3	L. White	2 Main St., Toronto	(416)123-0011	_____

5. a written statement that the person(s) performing the extermination will not be paid for their services;

OR

the name, address, telephone number and licence number of the licensed exterminator hired to perform the extermination.

The completed application package should be forwarded to the Regional Pesticides Officer who is responsible for the county in which the proposed treatment will be done (Appendix H). **Allow 6 weeks for processing.**

***PERMITS WILL NOT BE PROCESSED
UNTIL ALL THE REQUIRED INFORMATION IS RECEIVED.***

Please note that maps are required for our records and will not be returned. Applicants should therefore retain copies for future submissions.

FORM 7



Pesticides Act - Form 7 / Loi sur les pesticides - Formulaire n° 7

Application For A Permit To Purchase A Pesticide And/Or Perform A Water Extermination Demande de permis d'achat d'un pesticide ou de destruction de parasites aquatiques

Personal information requested on this form is collected under the authority of the Pesticides Act, RSO, 1990, Ontario Regulation 914. It is used to evaluate applications for permits to use restricted pesticides according to the requirements of the Pesticides Act. Questions should be directed to your nearest Ministry of Environment and Energy Regional or District Office. Consult your telephone directory for the address and telephone number. / Les renseignements personnels demandés dans le présent formulaire sont recueillis en vertu du Règlement 914 de l'Ontario pour une application de la Loi sur les pesticides, L.R.O. 1990. Ils servent à évaluer les demandes de permis d'utilisation de pesticides à usage restreint selon les exigences de la Loi. Veuillez adresser toute question de service régional ou au bureau de district de ministère de l'Environnement et de l'Énergie de votre région. Les adresses et numéros de téléphone de ces bureaux figurent dans l'annuaire téléphonique.

Applicant Information / Renseignements sur l'auteur de la demande

Name of property owner / Nom du propriétaire	1.	Name no. / Tél. dom.	2.	Business tel. no. / Tél. bus.	3.
Mailing address / Adresse postale	4.		Postal code / Code postal		
				5.	

Pesticide and Site Information / Données sur les pesticides et la zone à traiter

Name of pest / Nom du parasite	6.		Name of pesticide / Nom du pesticide	7.	
Pest Control Pesticides Act No. / N° d'enregistrement	8.		Active ingredient(s) / Ingrédients actifs	9.	
Type of application / Méthode d'application	<input type="checkbox"/> Ground / terrestre <input type="checkbox"/> Air / aérien <input type="checkbox"/> Both / combinée		10.		
Date requested / Date demandée	11.		Quantity requested / Quantité demandée	12.	
Date of treatment / Date de traitement	13.		No. of treatments / N° de traitements	14.	
No. of properties to be treated / N° de propriétés à traiter	15.		Has a permit been issued previously? / Un permis a-t-il déjà été délivré?	<input type="checkbox"/> Yes / Oui <input type="checkbox"/> No / Non	
Last permit no. / N° du dernier permis	17.		Amount of pesticide left over from last treatment / Quantité de pesticide qui reste du dernier traitement	18.	
Area to be treated (attach a map and indicate access route) / Zone à traiter (joindre une carte et y indiquer la route d'accès)			Length (feet/metre) / Longueur (pieds/mètre) _____ Width / Largeur _____ Depth (feet/metre) / Profondeur (pieds/mètre) _____ Name of body of water / Nom de l'étendue d'eau _____		
If for livestock treatment / Si for livestock treatment Stream flow / Débit du cours d'eau _____ Current speed / Vitesse du courant _____			20. 21. 22. 23.		
Township / Canton			District/County/Municipality / District/comté/municipalité		
24.			25.		
Water in the vicinity of the treated area or to be used for / L'eau dans la zone des alentours de la zone traitée <input type="checkbox"/> Swimming / Baignade <input type="checkbox"/> Fishing (specify) / Pêche (préciser) <input type="checkbox"/> Drinking / Eau potable <input type="checkbox"/> Crop irrigation / Irrigation des cultures <input type="checkbox"/> Livestock watering / Soins <input type="checkbox"/> Other (specify) / Autre (préciser)					
Have all adjacent owners, tenants or organizations been advised of the proposed treatment and have they all agreed, reading use of the water may be temporarily restricted? / Tous les propriétaires, locataires ou organismes adjacents ont-ils été avisés du traitement proposé et ont-ils donné leur accord, sachant que l'utilisation de l'eau pourrait être temporairement limitée?					
<input type="checkbox"/> No / Non <input type="checkbox"/> Yes, specify who notified them? / Oui les a avisés? _____ Date of notification / Date de notification _____					
Is the treatment to be done by an exterminator? / Le traitement doit-il être fait par un exterminateur de parasites?					
<input type="checkbox"/> No / Non <input type="checkbox"/> Yes, indicate / Oui, préciser					
Name of exterminator / Nom du destructeur			Tel. no. / Tél.		
29.			30.		
Address / Adresse			Exterminator's license no. / N° de permis de destructeur de parasites		
31.			32.		

Signature

Signature of property owner or exterminator / Signature du propriétaire ou du destructeur	Date
33.	34.

For Ministry Use Only / Réserve au Ministère	
Permission is hereby granted under the Pesticides Act and Regulations to perform a water extermination: / La présente autorise aux termes de la Loi sur les pesticides et des règlements établis en vertu de celle-ci la destruction de parasites aquatiques:	
<input type="checkbox"/> with the attached amendments / avec les modifications ci-jointes <input type="checkbox"/> in accordance with the above application / conformément à la demande ci-dessus	
Signature of Director under the Pesticides Act / Signature du directeur délégué en vertu de la Loi sur les pesticides	Date
MOEE District contact / Représentant(e) du bureau de district du MEE	Ministry of Natural Resources District contact / Représentant(e) du bureau de district - des Ressources naturelles
1280 (1284)	

This section to be detached at time of pesticide purchase/sale and retained on record by vendor.
A détacher au moment de l'achat ou de la vente et à garder en dossier par le vendeur.

Ministry of Environment and Energy / Ministère de l'Environnement et de l'Énergie Ontario	This Permit No. / Ce permis n° _____ authorizes the purchase/sale of: / autorise l'achat ou la vente de: _____
1280 (1284)	

Appendix C

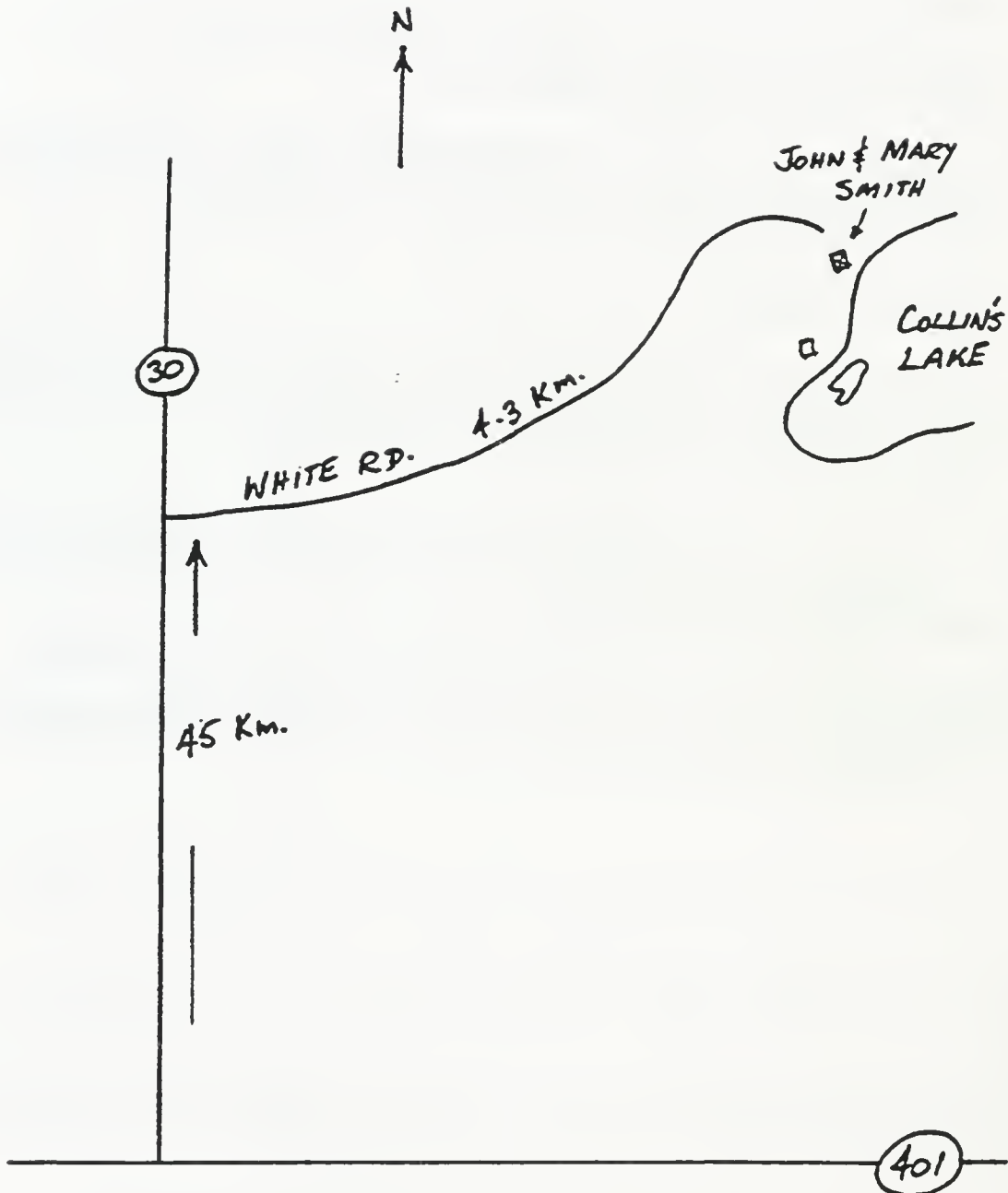
Guide for Completing Application Form

1. name of **person or organization** applying for a permit who owns the property abutting the water area to be treated.
2. home telephone number including area code.
3. business telephone number including area code.
4. complete mailing address of permit applicant.
5. postal code for address in 4.
6. name of the pest aquatic plant you are controlling (see APPENDIX J)
7. indicate the name of the pesticide (see APPENDIX F).
8. indicate the Pest Control Products Act Registration Number (PCP No.) (see APPENDIX F).
9. write the name of the active ingredient (see APPENDIX F).
10. how is the pesticide to be applied. Check one box. If applying by boat, check “ground”
11. what rate of application is to take place? Consult the pesticide label directions for the correct rates and APPENDIX F (e.g. if you have selected Reglone A and the average depth in your treatment area is less than 1.5 metres you would write 22L/ha).
12. how many litres or kilograms will you need?
13. date that treatment is proposed. The treatment date should be specified as a range covering a maximum 30 day period (e.g. July 1999).
14. indicate the total number of treatments to take place. In most situations only 1 treatment will be allowed.
15. number of individual properties abutting the water area to be treated. If more than 1 property owner is participating in the proposed treatment write the number of properties here and refer to APPENDIX B for more instructions.
16. indicate whether a permit has been issued to you in past years.
17. permit number of previous permits (e.g. WH-4-1-058-91)

18. total amount (in litres or kilograms) of any remaining pesticides purchased under previous permits e.g. ½ litre. **(please note: any left over herbicide must be safely stored and prevented from freezing).**
19. provide the dimensions (length, width and average depth) of the water area to be treated.
20. not applicable.
21. write the proper name of your waterbody e.g. if your cottage is located on Joe's Bay of Horn Lake write Horn Lake not Joe's Bay.
- 22-25. write your municipal lot number (not your building lot number), municipal concession, township, district/county/municipality for the property abutting the water treatment site (check your driver's licence or tax bill or property survey for details).
26. complete as applicable.
27. you must notify your adjacent neighbours of your intention to perform the extermination before submitting your application. Note that due to the 5 day waiting period for human consumption of water treated for Reglone A, the applicant must be willing to provide an alternate water supply to adjacent property owners if requested.
- 28-32. if you are contracting an exterminator licensed by the MOE to apply herbicides into water check off the "yes" box and obtain the name, exterminator license number and mailing address of the licensed exterminator.
33. signature of the applicant (property owner abutting the water area to be treated).
34. date application signed (should be same year in which the treatment will be performed).

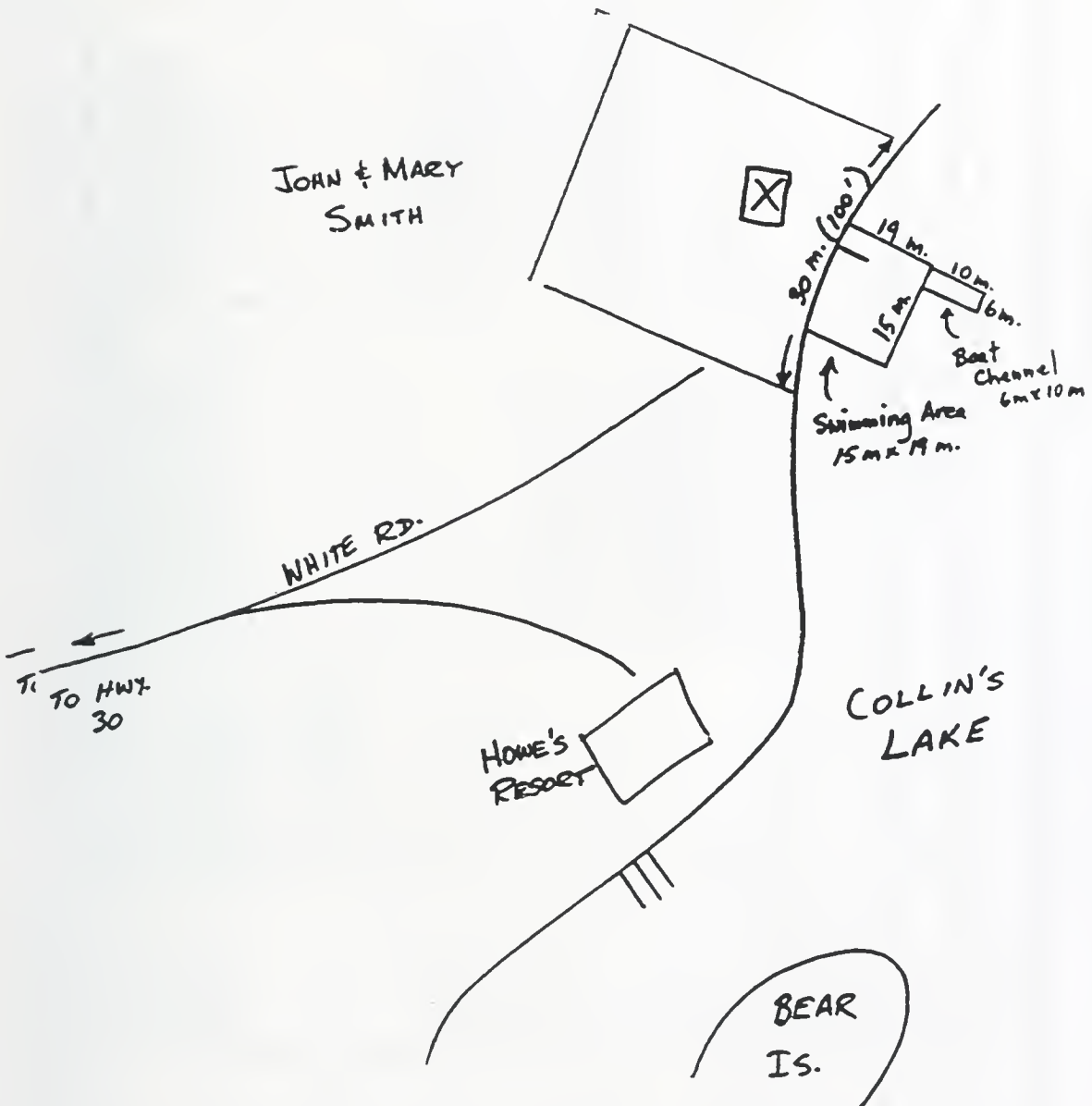
Appendix D

Map to Locate Property



Appendix E

Map Detailing Treatment Area



APPENDIX F

GUIDE TO HERBICIDE RATES AND RESTRICTIONS

This factsheet is not intended to supersede or replace any product label. All label directions must be strictly followed.
ALWAYS READ THE LABEL CAREFULLY BEFORE USING ANY PESTICIDE.

Product Name	Active Ingredient	PCP #	Treatment Sites	Pests Controlled	Restrictions	Fish Caution	Rates
CUTRINE PLUS (liquid)	Copper, (9.0%)	11249	Ponds with no outflow.	Algae	These products may be used only in ponds which are wholly confined within the property of the user and where there is no outflow beyond the property limits at any time. Application is prohibited in public waters or water courses that may drain into public waters Not for use in potable water systems	<p><u>Extreme caution</u> is advised when using copper compounds in ponds containing fish.</p> <p>May be extremely toxic to fish, particularly trout, in soft waters at any concentration and in hard waters at concentrations greater than 0.4 µg/L.</p> <p>To avoid suffocation of fish due to lack of oxygen caused by decaying vegetation, treat 1/4 to 1/3 of the pond at one time. Wait two weeks before treating another section of the pond</p>	<p>Most algae</p> <ul style="list-style-type: none"> • 9.2 L/ha in 0.5 m water depth • 18.42 L/ha in 1 m water depth • 27.63 L/ha in 1.5 m water depth <p><i>Chara</i></p> <ul style="list-style-type: none"> • 18.42 L/ha in 0.5 m water depth • 36.48 L/ha in 1.0 m water depth • 55.26 L/ha in 1.5 m water depth
		13945		<i>Chara</i> , <i>Nitzella</i> and bottom growths of filamentous algae			<ul style="list-style-type: none"> • 67 kg/ha (large treatment area) • 6.7 g/m² (spot treatment)
AQUASHADE (liquid)	Water Soluble Dyes (26.0%)	22746	Ponds with no outflow	Filamentous algae and other aquatic weeds	Do not use in water where loss of dye can occur by water exchange or overflow such as in lakes, running streams or ponds with an outlet Do not apply to water that will be used for drinking or other domestic purposes	Mechanically remove heavy vegetation before applying Aquashade, to avoid oxygen depletion and fish suffocation	<ul style="list-style-type: none"> • 750 mL/1000 m³ of water

Product Name	Active Ingredient	PCP #	Treatment Sites	Pests Controlled	Restrictions	Fish Caution	Rates
REGLONE A (liquid herbicide)	Diquat (200 g/L)	9512	Still or slow moving water of farm dugouts, farm ponds, farm ditches, lakes and canals	Cootail, pond weeds, water milfoil, duckweed and Canada waterweed Algae <i>Cladophora</i> sp., <i>Spirogyra</i> sp and <i>Pithophora</i> sp will be temporarily controlled Stonewort and muskgrass will <u>not</u> be controlled temporary control of waterlilies	Do not use treated water for at least 24 hours after treatment for swimming or animal consumption Do not use treated water for irrigation or human consumption for at least 5 days	Treat only a small portion of the area at one time to avoid oxygen depletion and fish suffocation	<ul style="list-style-type: none"> • 22 L/ha in less than 1.5 m of water • 30-35 L/ha in greater than 1.5 m of water
AQUA-KLEEN (granular)	2,4-D (19%)	9907	Ponds, lakes, reservoirs, marshes, drainage ditches, canals, rivers and streams that are quiescent or slow moving	Water milfoil, water stargrass, bladderwort, white water lily, yellow water lily, water shield, coontail and marine eelgrass.	<u>Do not use within 1 kilometre of any active water intake.</u> Do not use water from treated area for consumption by humans or livestock or for irrigation of 2,4-D sensitive crops, for at least 60 days after treatment in confined waters	Treat early in season when plant growth is sparse to avoid oxygen depletion and fish suffocation	<ul style="list-style-type: none"> • 110 - 225 kg/ha
GRAM(OX)ONE (liquid herbicide)	Paraquat (200 g/L)	8661	Wherever cattails, bulrushes and emerged grasses occur	Cattails, bulrushes and emerged grasses	Do not use treated water for 7 days for swimming or human or animal consumption Do not use treated water for irrigation for 5 days		<ul style="list-style-type: none"> • 5.5 - 11 L/ha
AMITROL-T (liquid herbicide)	Amitrole 200g/L	16548	Non-cropped areas (roadsides, fencerows, ditchbanks) where water is wholly confined to user's property To be used in dry ditches or ditches with standing <u>water only</u>	Cattails	Do not apply where water will be used for irrigating, drinking or other domestic uses Do not apply where water is not wholly confined to user's property Do not contaminate any body of water		<ul style="list-style-type: none"> • 45-55 L/ha

Product Name	Active Ingredient	PCP #	Treatment Sites	Pests Controlled	Restrictions	Fish Caution	Rates
KARMEX DF (dispersible granule)	Diuron (80%)	21252	Ponds/dugouts with little or no outflow.	Algae (filamentous types and <i>Chara sp</i>) and other aquatic plants such as pond weeds, duckweed and bladderwort	<p>Do not use in domestic water supplies</p> <p>Do not use in ponds and dugouts producing fish for human consumption</p> <p>Do not irrigate with treated water for one year</p> <p>Do not apply to ponds having desirable trees or shrubs on the perimeter or to areas where their roots may extend, or in locations where the herbicide may be washed or moved in contact with the roots.</p> <p>Do not drain ponds into areas containing desirable plants, as injury to the plants may result</p> <p>Diuron is not effective in flowing water</p>	Treat only a small portion of the pond at one time to avoid oxygen depletion and fish suffocation	<p>• 6.25 - 25 kg/hectare-metre² (use lower rates for algae and higher rates for aquatic weeds)</p>

CALCULATIONS

$$1 \text{ m}^3 = 1,000 \text{ L} \qquad 1 \text{ kg} = 1,000 \text{ g} \qquad 10,000 \text{ m}^2 = 1 \text{ ha}$$

Hectare-metre is equal to the volume of water in pond 1 hectare in area and 1 metre deep. To calculate a "hectare-metre", multiply the number of hectares by the average depth.

Appendix G

Herbicide Calculations

In order to calculate the amount of herbicide required for a treatment, it is essential to calculate, as accurately as possible, the surface area of the body of water to be treated. If the product application rate for a herbicide (as given on the label) is stated in "kg/ha" (kilograms per hectare) or "L/ha" (litres per hectare), then the amount of herbicide to be used can be calculated by multiplying the surface area (in hectares) by the product application rate (expressed in kilograms or litres per hectare).

EXAMPLE #1

You want to use Reglone A to control the growth of pond weeds, water milfoil and duckweed in a 15.25 m x 30.5 m (50 ft. by 100 ft.) area of the lake in front of your cottage.

- a) Determine the application rate of the product by reading the Reglone A label (see also "Guide to Pesticide Rates").

The product application rate is 22L/ha.

- b) Determine the surface area of the water to be treated, in hectares:

$$\begin{aligned}\text{Surface area} &= \text{length} \times \text{width} \\ &= 15.25 \text{ m} \times 30.5 \text{ m} \\ &= 465 \text{ m}^2\end{aligned}$$

$$\begin{aligned}\text{Since } 10,000 \text{ m}^2 &= 1 \text{ ha} \\ \text{Then } 465 \text{ m}^2 &= \frac{465}{10,000} \\ &= 0.0465 \text{ ha}\end{aligned}$$

- c) Calculate the amount of Reglone A required:

Amount required

$$\begin{aligned}&= \text{surface area} \times \text{application rate} \\ &= 0.0465 \text{ ha} \times 22 \text{ L/ha} \\ &= 1 \text{ L}\end{aligned}$$

Therefore:

1 litre of Reglone A would be required to treat an area of 15.25 m (50') x 30.5 m (100').

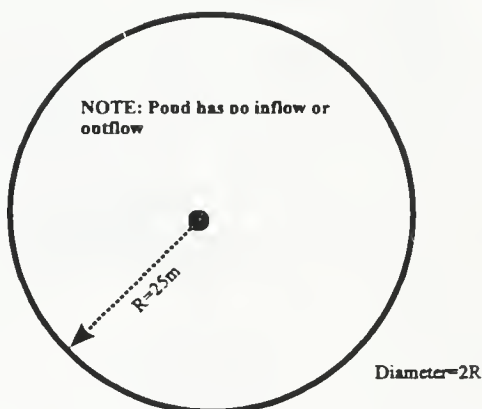
NOTE: It is essential to use the correct application rate, in order that the correct amount of herbicide is applied. All calculations should be made using the **PRODUCT** application rate as recommended on the **PRODUCT LABEL**.

If the application rate for a herbicide is given as an amount of product to use per volume of water, then the volume of water to be treated must be calculated before the amount of herbicide to be used can be determined (see Example #2).

EXAMPLE #2

To treat a roughly circular pond, 50 m in diameter, with Aquashade Dye for the control of filamentous algae, the amount of Aquashade required can be calculated as follows:

- a) The surface area of a circle is equal to πr^2 , where $\pi = 3.14$ and r is the radius of the circle (see diagram below).



Therefore, the surface area of the pond is:

$$\begin{aligned} &= \pi r^2 \\ &= 3.14 \times 25 \text{ m} \times 25 \text{ m} \\ &= 1,962.5 \text{ m}^2 \end{aligned}$$

- b) The volume of water to be treated is calculated by multiplying the surface area times the average depth. Therefore, if the average depth of the above pond is 2.0 m, the volume of water is equal to:

surface area x average depth

$$1,962.5 \text{ m}^2 \times 2 \text{ m} = 3,925 \text{ m}^3$$

c) Therefore, the amount of Aquashade required is:

recommended product rate x volume of water

$$\begin{aligned} 750 \text{ mL/1000 m}^3 \times 3.925 \text{ m}^3 &= 2943.75 \text{ mL} \\ &= 2.94375 \text{ L} \\ &= 3 \text{ L Aquashade} \end{aligned}$$

Conversions:

1 yard	=	0.91 m
10,000 m ²	=	1 ha
1 m ³	=	1000 L
1 ha	=	2.5 acres
1000 g	=	1 kg
1 ft	=	0.3048 m
50 ft	=	15.25 m
100 ft	=	30.50 m

Legend:

ft	=	foot
m	=	metre
m ²	=	square metre
m ³	=	cubic metre
ha	=	hectare
g	=	gram
kg	=	kilogram
L	=	litre

Appendix H

Ontario Ministry of Environment Pesticides Control Officers

REGION County	REGIONAL OFFICER Address	Telephone
Central Region Toronto, Halton, Peel York and Durham	Charles Zubovits Barbara Szegvary 5775 Yonge St, 8th Floor Toronto, Ontario M2M 4J1	(416)326-3671 (416)327-3477 Toll Free 1-800-810-8048 Fax (416)325-6347
West-Central Region Haldimand-Norfolk, Niagara, Hamilton-Wentworth, Dufferin, Wellington, Waterloo, Brant	Paul McCubbin Linda Gabriele Ontario Government Building 119 King St. West, 12th Floor P.O. Box 2112 Hamilton, Ontario L8N 3Z9	(905)521-7667 (905)521-7658 Fax (905)521-7820
Eastern Region Frontenac, Hastings, Lennox & Addington, Prince Edward, Leeds & Grenville, Prescott & Russell, Stormont/Dundas & Glengarry Peterborough, Victoria, Northumberland, Renfrew, Ottawa- Carleton, Lanark, District of Nipissing (Twsp of Airy, Murchison, Dickens, Lyell and Sabine)	Don Raddon Andrew Morley 133 Dalton Avenue Kingston, Ontario K7L 4X6	(613)549-4000 Toll Free 1-800-267-0974 (In Eastern Region only) Fax (613)548-6908
Southwestern Region Elgin, Middlesex, Oxford, Essex, Kent, Lambton, Bruce, Grey, Huron, Perth	Doug Morrow Wray Lampman 659 Exeter Road, 2 nd Floor London, Ontario N6E 1L3	(519)873-5047 (519)873-5048 Fax (519)661-1742
Mid-Ontario Region Manitoulin, Nipissing, Parry Sound, Sudbury, Simcoe, Haliburton, Muskoka	Ray Potvin John Negusanti 199 Larch Street, Ste 1101 Sudbury, Ontario P3E 5P9	(705)670-3247 (705)670-3249 Fax (705)675-4180
Northern Region Kenora, Rainy River, Thunder Bay, Algoma, Cochrane, Timiskaming, Sault Ste. Marie, Timmins	Gerry Gammond Ontario Government Building 435 James Street South, Ste. 331 Thunder Bay, Ontario P7E 6E3	(807)475-1712 Fax (807)475-1754

Appendix I

Ministry of Natural Resources District/Area Offices

Central Region		
Bancroft	Box 500, Hwy. 28 K0L 1C0	613-332-3940
North Bay	3301 Trout Lake Rd P1A 4L7	705-475-5550
Parry Sound	7 Bay St. P2A 1S4	705-746-4201
Pembroke	Box 220, Riverside Dr. K8A 6X4	613-732-3661
Sault Ste. Marie	875 Queen St. East P6A 5L5	705-949-1231
Sudbury	Box 3500, Station "A" P3A 4S2	705-564-7823
Southern Region		
Aurora	50 Bloomington Rd. W L4G 3G8	905-713-7372
Aylmer	353 Talbot St. West N5H 2S8	519-773-9241
Cambridge	Box 2186, Beaverdale Rd. N3C 2W1	519-651-8170
Kemptville	Box 2002, Concession Rd. K0G 1J0	613-258-8204
Midhurst (Huron)	Midhurst L0L 1X0	705-725-7504
Peterborough	P.O. Box 7000, 300 Water St. K9J 8M5	705-755-2000
Northeast Region		
Chapleau	190 Cherry St. P0M 1K0	705-864-1710
Cochrane	Box 730, 2 Third Ave. P0L 1C0	705-272-4365
Hearst	Box 670, 613 Front St. P0L 1N0	705-362-4346
Kirkland Lake	Box 129, Swastika P0K 1T0	705-642-3222
Timmins	896 Riverside Dr. P4N 3W2	705-267-7951
Wawa	Box 1160, Hwy. 101 P0S 1K0	705-856-2396
Northwest Region		
Dryden	Box 730, 479 Government Rd. P8N 2Z4	807-223-3341
Fort Frances	922 Scott St. P9A 1J4	807-274-5337
Kenora	Box 5080, 808 Robertson St. P9N 3X9	807-468-2528
Nipigon	Box 970, Hwy. 17 P0T 2J0	807-887-5000
Red Lake	Box 5003, Hwy. 105 P0V 2M0	807-727-2253
Sioux Lookout	Box 309, Prince St. P0V 2T0	807-737-1140
Thunder Bay	Box 5000, 435 James Street S. P7C 5G6	807-475-1472

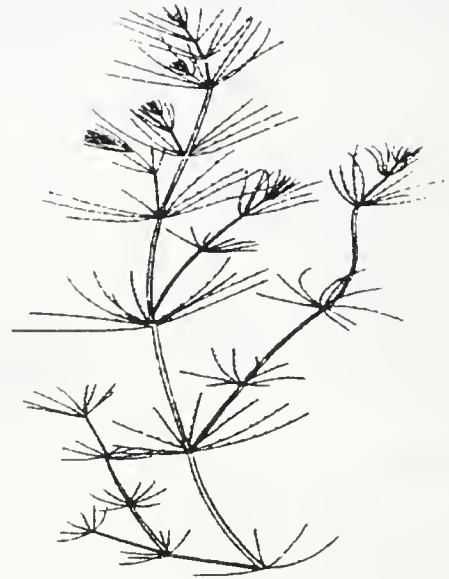
Aquatic Plant Identification

FILAMENTOUS ALGAE

Plant-Like Algae

Muskgrass (*Chara vulgaris*)

- lime-green to grey-green
- rough, coarse, gritty to touch
- strong musk odour
- dries to white powder when removed from water
- usually less than 60 cm high
- orange fruiting bodies may be present



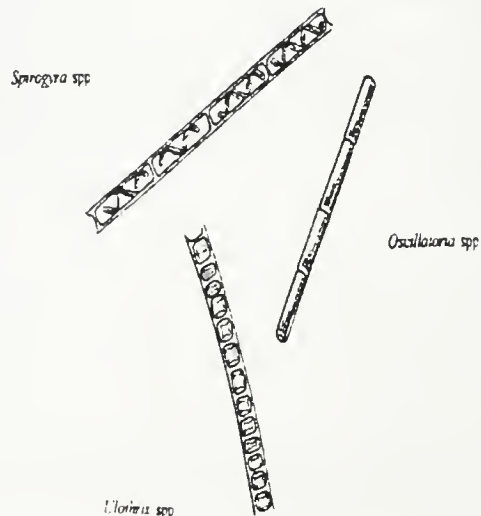
Stonewort (*Nitella sp.*)

- much like Chara but smooth to touch

FILAMENTOUS GREEN ALGAE

e.g. *Spyrogyra sp.*

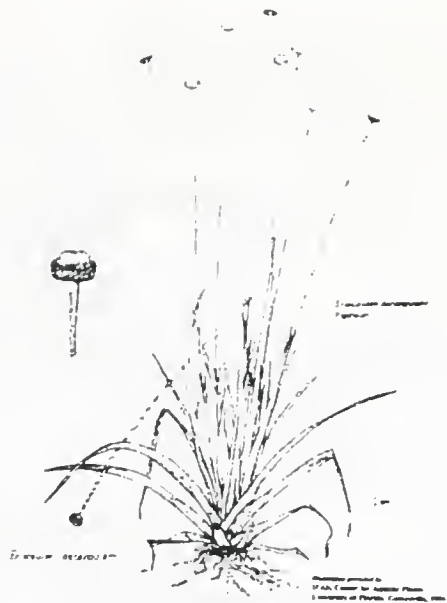
- green hair-like filaments
- slimy to touch
- often attached to rocks



SUBMERGED VASCULAR AQUATIC PLANTS

Pipewort (*Eriocaulon* sp.)

- leaf rosette about 8 cm diameter
- button-like white flowers on straight stalk above surface of water
- fibrous white root



Water starwort (*Callitriche* sp.)

- not a common problem in Ontario



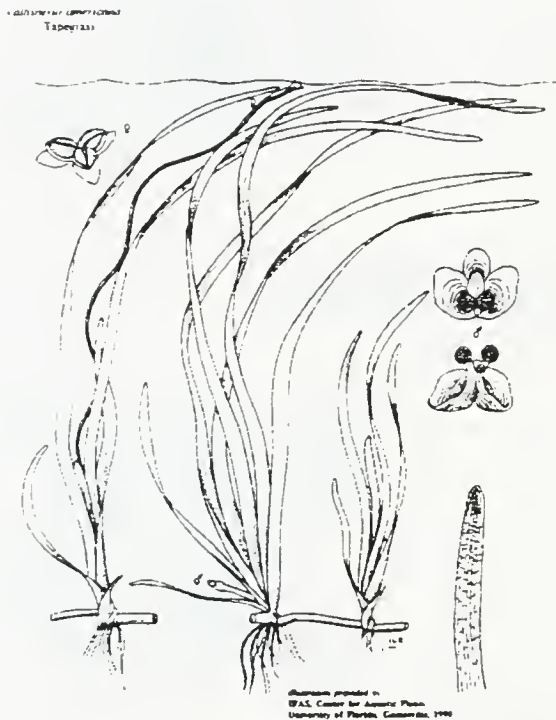
Canada Water Weed (*Ancharis canadensis*) (Elodea)

- entirely submerged except flower
- stem often branched
- base of leaf embraces stem
- clusters of 4 small leaves around main stem
- leaf margin has microscopic teeth



Smartweed (*Polygonum sp*)

- may be partly terrestrial
- bright pink flower above water surface
- leaves have network of veins branching from midribs
- leaves partly submerged with only flower above water surface



Tape Grass/Wild Celery (*Vallisneria americana*)

- leaves ribbon-like, up to several metres in length
- short flared root
- tiny white flower at surface on coiled stem
- long pod-shaped fruiting bodies
- new plants grow at nodes along buried stems

Coontail (*Ceratophyllum sp.*)

- plants entirely submerged, no roots
- paired leaflets grouped at regular intervals along stem
- stem may be branched



Water milfoil (*Myriophyllum sp.*)

- four leaves at each stem node
- each leaf symmetrically subdivided
- many stems from one root; stems may be branching
- there are a number of native and exotic species
- flowers in spikes above water surface



Bladderwort (*Utricularia sp.*)

- asymmetrical branching
- tiny bladders easily recognizable

Curly-leaf pondweed (*Potamogeton crispus*)

- edge of leaf serrated
- leaves strongly crinkled
- base of leaf does not clasp stem



Bassweed (*Potamogeton amplifolius*)

- longest lived member of the pondweed family



Richardson's Pondweed (*Potamogeton richardsonii*)

- edge of leaf smooth
- leaves moderately crinkled
- base of leaf clasps stem

Flat-stemmed Pondweed (*Potamogeton zosteriformis*)

- main leaves ribbon-like and long, 1-3 mm wide
- stem multi-branched
- stipules delicately veined either green or white



Floating-leaf pondweed (*Potamogeton natans*)

- brownish-green leaves float on water surface
- leaves heart-shaped at base
- flower spike above water surface



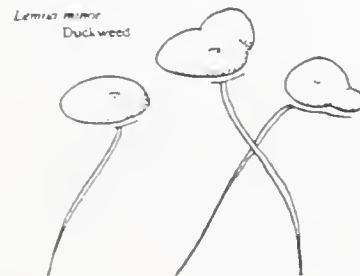
Sago Pondweed (*Potamogeton pectinatus*)

- leaf tips with long tapering points
- numerous thread-like leaves spread in fan-like fashion from stem
- found primarily in hard or brackish water or slow moving streams

EMERGENT AQUATIC PLANTS

Duckweed (*Lemna sp.*)

- floats at or near water surface
- hair-like roots may dangle below foliage



Watermeal (*Wolffia* sp.)

- floating on or near surface of water
- no roots
- microscopic meal-like (globular) bodies

Wolffia spp
Water-meal



Horsetail (*Equisetum* sp.)

- stems hollow and pointed
- no true leaves but a whirl of slender branches from each joint

Water Plantain (*Sagittaria* sp.)

- leaves with broad flat blades, tapered at base
- likes moist soil/terrestrial habitat



Arrowhead (*Sagittaria latifolia*)

- arrowhead shaped leaves
- tiny white flowers
- likes moist terrestrial environments edging lakes and marshes



Sagittaria latifolia L.
BPA, Center for Aquatic Plant
University of Toronto, Canada 2010

Pontederia cordata
Picture: 2010

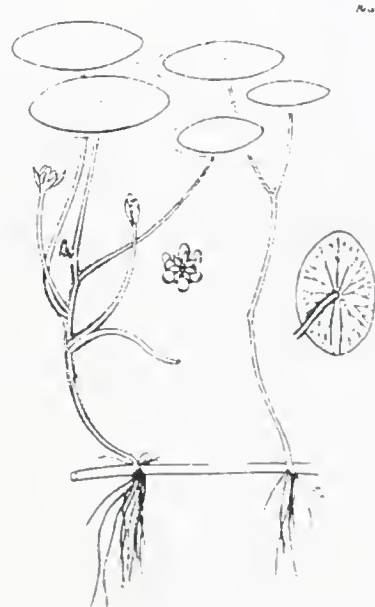


Pickerelweed (*Pontederia* sp.)

- bright purple flower
- found in water 2-6 cm deep; must always be wet
- heart-shaped leaves extend from base

Water Shield (*Brasenia schreberi*)

- leaves float on surface
- branches coated in gelatinous slime



Brasenia schreberi
Water Shield

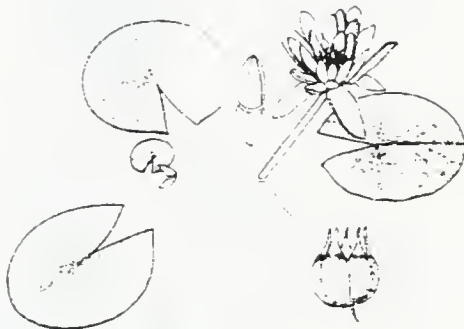
Brasenia schreberi L.
BPA, Center for Aquatic Plant
University of Toronto, Canada 2010

Picture: 2010

Yellow water lily/ Spatterdock (*Nuphar sp.*)

- leaf oblong
- flower yellow

Nuphar sp.
Water lily



Nuphar sp.
Water lily



Nuphar sp.
Water lily

White water lily (*Nymphaea sp.*)

- leaf round
- flower white



Nymphaea sp.
White water lily

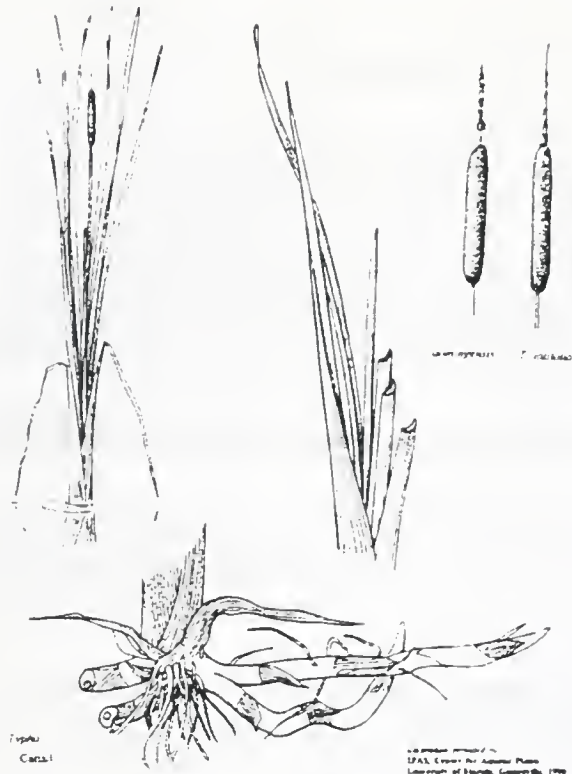
Nymphaea sp.
White water lily

Bulrush (*Scirpus validus*)

- stems hollow, round or triangular
- inflorescence arises near tip of stem, variable in shape and size

Cattail (*Typha* sp.)

- extensive underground network of stems
- characteristic cigar-shaped spike



Illustrations provided by:

Center for Aquatic Plants, University of Florida,
Gainesville, Florida.

and

“How to Identify and Control Water Weeds and
Algae”. Applied Biochemist Inc. 1-800-365-0224

NOTE: On September 18, 1997, the Ontario Ministry of Natural Resources (MNR) withdrew from the Interim Referral Process for Authorization of Projects under Section 35 of the Federal *Fisheries Act*. As a result, MNR will no longer carry out federal fisheries duties for fish habitat protection. MNR will no longer review plans or proposals to determine if the proposed project is likely to harmfully alter, disrupt or destroy fish habitat with respect to Section 35 of the Federal *Fisheries Act*. It is the responsibility of the proponent to obtain advice from the Department of Fisheries and Oceans on Protecting fish habitat or an authorization per Section 35(2) of the Federal *Fisheries Act*. In addition, MNR will no longer enforce, on behalf of the federal government, the habitat protection provisions (section 35) of the Federal *Fisheries Act*.

WORKING AROUND WATER? WHAT YOU SHOULD KNOW ABOUT FISH HABITAT AND CONTROLLING AQUATIC PLANTS

Aquatic plants are a natural part of healthy aquatic ecosystems. Plants play an important role in the ecology of shoreline areas, and they provide habitat in which fish can spawn, hatch their eggs, feed, and hide from predators. Aquatic plants also help maintain water quality by stabilizing sediments.

The Ministry of Natural Resources aims to maintain and improve the quality of fish habitat in Ontario so that fish will continue to have healthy places to live. If you own or lease waterfront property, you can help protect the fish in your lake or river by protecting fish habitat along your waterfront.

Having too many aquatic plants can interfere with boats, swimming and other water activities. At times, some control may be necessary. However, indiscriminate removal of aquatic plants can harm the environment and destroy fish habitat.

This fact sheet provides important information for property owners planning to remove aquatic plants. It outlines when a work permit under the Public Lands Act is required. For situations where permits are not required, this fact sheet outlines best management practices for aquatic plant removal. If these practices are followed, fish habitat will be protected in most cases.

PERMITS

Anyone proposing to apply a herbicide for the control of aquatic plants must first obtain a permit issued by the Ministry of Environment (MOE) under the *Pesticides Act*. If you are planning to use a herbicide, you will not need a work permit from MNR.

Keep in mind that if your property fronts onto the Rideau Canal or Trent Severn Waterway, these areas are under Federal jurisdiction. Approval for in-water and shoreline works in these areas will be required by the Department of Canadian Heritage, Parks Canada.

If you wish to remove aquatic plants by physical or mechanical methods (e.g. using rakes, mechanical harvesters or bottom barriers) you may need a work permit from MNR. The beds of most waterbodies in

Ontario are legally public land. Historically, any project which involved aquatic plant removal on this land needed a work permit. Recent legislative changes removed the requirements for work permits for some aquatic plant removal projects. Listed below are the projects that do, and do not, require a permit under this legislation

1) Aquatic plant removal projects which will NOT require a work permit:

- Removal of up to 100 sq. metres of aquatic vegetation annually from any lake or stream located south of the line formed by highway #7 from Lake Huron to Sharbot lake at highway 38, and the area south of highway 401 from Kingston to the Quebec Border.

2) Aquatic plant removal projects which will require a work permit:

- If you plan to remove any amount of aquatic vegetation from a lake or stream in the area north of highway #7 from Lake Huron to Sharbot lake; or the area north of highway 401 from Kingston to the Quebec Border, you will need approval through the work permit process.

Removal of more than 100 square metres of aquatic vegetation annually from any lake or stream located south of Highway 7 from Lake Huron to Sharbot lake, and south of Highway 401 from Kingston to the Quebec Border.

If your project involves in-water dredging (removal of rocks or sediment from the bottom or filling, you require a permit from MNR .

Projects that require a work permit can pose a significant risk to fish habitat. MNR may visit the site to assess the habitat in the area. This takes time, so submit your application early. You can obtain a work permit application form by contacting your local MNR office.

Keep in mind that you may also need other additional approvals (i.e. Parks Canada). Approval from one government agency does not guarantee that you will be able to obtain approval from another agency.

BE ENVIRONMENT FRIENDLY

The federal *Fisheries Act* provides for the protection of fish habitat. Under this Act, no one may carry out work that harmfully alters, disrupts or destroys fish habitat, unless there is clear authorization. Also, no one is permitted to deposit a harmful substance in water containing fish. Violations can mean substantial fines of up to \$1,000,000, risk of imprisonment, and a requirement to cover the costs of returning the site to its natural state.

Best Management Practices

The following best management practices will help to ensure that your aquatic plant removal project will not harm fish habitat. Following these practices will also help to ensure that the federal *Fisheries Act* is not violated.

To protect the aquatic environment, all plant control projects must be carefully planned and evaluated. Important factors include:

- **Control methods:** Many control methods are available for aquatic plants. These include raking, removing by hand, mechanical harvesting, using cutter-bar devices, bottom barriers such as mats or blankets, and the use of chemicals (herbicides). Generally, the preferred methods from a fish habitat perspective are hand removal and raking. The use of cutter bar devices or mechanical harvesting is also acceptable provided disturbance of the lake bottom is minimized.
- **To Use a Herbicide:** MOE must approve your project, and you will need to obtain a Permit to Purchase and/or Perform a Water Extermination. Contact your local office of MOE.
- **How much to remove:** The amount of plant material you may remove depends on the conditions in your waterfront site. Factors include the fish species present, the abundance and distribution of plants, and the reasons why you are controlling the plants.

Generally, in lakes with extensive plant growth, you may remove up to 100 square metres of aquatic plants. However, in lakes with limited plant growth, removal of even small amounts of plant growth may be unacceptable.

- **Dispose of the plants on dry land:** If the plants are removed by physical or mechanical methods, they should be temporarily placed in a holding site distant from the shoreline before disposal. This prevents leaching of nutrients back into the water.
- **Timing is critical:** Warmwater fish species spawn during spring and early summer. Removing aquatic plants at this time could kill eggs and young fish. If you do not require a permit, we recommend that you only remove vegetation after the second or third week in June.

If you are in an area where a permit is required, the permit will specify the exact time of removal.

- **Avoid projects which involve in-water dredging and filling:** Dredging and filling may be harmful to fish and their habitat. If your project involves filling or dredging (removal of rocks or sediment from the bottom), you will need a permit.

WORKING TOGETHER TO PROTECT FISH HABITAT

For more detailed advice on permit requirements, and how to perform in-water works in an environmentally friendly manner, contact your local MNR office

It's In Your Hands

CAUTION

***It's in
YOUR
Hands***

**WHAT IS A
PESTICIDE?**

A pesticide is any substance used to kill or control unwanted rodents, plants or organisms which pose a threat to agricultural crops, forests, lawns, gardens and human health and comfort.

Pesticides have become an integral part of modern life, but they are also dangerous chemicals.

.....

**THE RESPONSIBILITY
TO USE THEM SAFELY
IS IN YOUR HANDS.**

**PESTICIDES MAY CAUSE
SERIOUS ENVIRONMENTAL
AND HEALTH DAMAGE.
CARE MUST BE EXERCISED
WHEN WORKING WITH, STORING OR
DISPOSING OF THESE CHEMICALS.**



Environment
Ontario

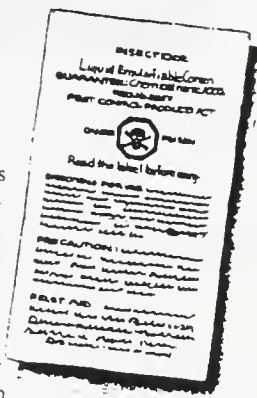
PROPER USE OF PESTICIDES

HANDLING

READ THE LABEL

■ Each pesticide container carries a label outlining active ingredients, recommended uses, rate of application, safety precautions, first aid instructions and recommendations for clean-up and disposal.

■ It is easy to forget an important precaution or direction for use; so read the label *each time* you use a pesticide. Never apply more pesticide than described on the label.



PROTECT YOURSELF

■ When applying or mixing pesticides, always wear protective clothing. This may include, gloves, apron, cap, goggles and respirator. Be especially careful when handling the concentrated product.

■ Don't eat or smoke while using pesticides. Most pesticide labels indicate special precautions; FOLLOW THE INSTRUCTIONS CAREFULLY.

■ When you are finished working with a pesticide, remove your clothing and wash it separately from other laundry. Wash any exposed skin with soap and water.



PROTECT OTHERS

■ Do not allow children to assist you or be present in the area where you are working. Animals – this includes livestock and pets – should also be out of the area.

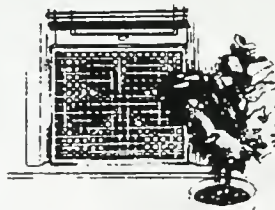
■ When spraying a lawn with a pesticide, take care that the spray does not drift onto a neighbour's property, or onto your own vegetable garden or ornamentals. Keep all adults, children and pets off the lawn until the area has fully dried (2 to 3 hours).

PROTECT HOME AND WORKPLACE

■ If you are applying a pesticide in the kitchen or pantry to control pests such as ants, remove any food, dishes or utensils first. Do not spray pesticides around food. Before replacing food and/or dishes, cover the shelving with foil or new shelf paper.



■ Some domestic class pesticides must be diluted with water before use. Always mix pesticides out-of-doors or in a well-ventilated area. In mixing the spray solution, do not use the kitchen sink or eating utensils which could easily be put back into domestic use.



■ If a pesticide has been applied to an enclosed area, follow label directions concerning ventilation of the premises.

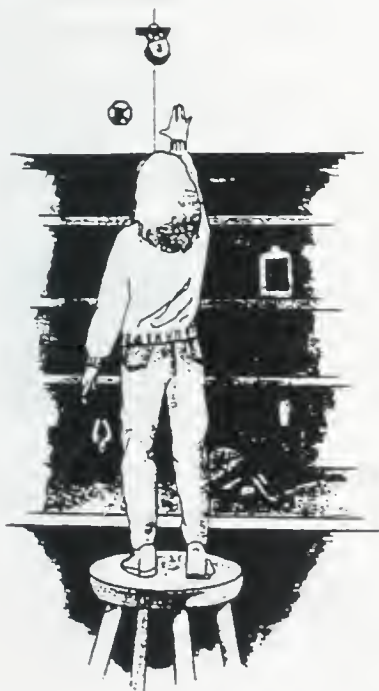
PROTECT THE ENVIRONMENT

■ Do not mix any pesticide near streams, lakes or ponds, or near wells which may provide water for domestic use, livestock or irrigated crops. Pesticides handled improperly can contaminate wells or kill fish in nearby streams or lakes.

STORAGE

PESTICIDES MUST BE KEPT OUT OF REACH OF CHILDREN.

- Store them in a locked, ventilated compartment.
- Store pesticides away from food, medicine, house-keeping supplies and agricultural supplies such as seeds and fertilizers.
- Pesticides should be kept in their original containers. Unlabelled containers are a hazard. If you find one, do not guess at its contents; discard it with care using disposal suggestions that follow.
- If the container is broken, any remaining pesticide should be placed in a container similar to the original container and labelled immediately. Use protective clothing when broken containers or a spill are encountered.



DISPOSAL

- Pesticides are potentially dangerous chemicals to dispose of; so **BUY ONLY AS MUCH AS YOU NEED**. Any unused portion should be stored in the original container for later use.
- Many municipalities hold Household Hazardous Waste Days. On these days, pesticides and other chemicals commonly found around the home can be collected and then disposed of safely. Call your municipality; if they don't support and run this program, urge them to do so.
- Once empty, pesticide containers must not be reused, but be immediately discarded. Commercial or agricultural class pesticide containers should be triple-rinsed, with the rinse water going back into the spray-tank, and they may be disposed of according to municipal regulations. Consult the label for specific directions.
- Homeowners working with domestic class pesticides may put the empty containers directly out for garbage collection. Again, consult the label.
- Do not burn empty pesticide containers. They may give off toxic smoke or fumes.





ACCIDENTS WILL HAPPEN

■ Even after every precaution is taken, accidents can still happen. If you spill some pesticide, follow the instructions on the label concerning clean-up and disposal. You are legally required to notify the Spills Action Centre (1-800-268-6060) if the pesticide enters a watercourse or contaminates the environment.

■ What do you do if a family member or associate accidentally swallows some pesticide? Call the Poison Control Centre, your doctor or the police or fire department. These emergency phone numbers should be easily accessible. On the final page of this brochure are labels provided for this purpose. Simply detach the labels, moisten the backs and affix them in a visible place, preferably on or near a telephone.

■ When calling the Poison Control Centre, read the details on the pesticide label – name of product, active chemical ingredient, antidote – to them and ask for instructions. If you go to the hospital, take the label and/or the container with you

Most accidents can be prevented if you have the knowledge about how to use pesticides safely. It is up to every person using these chemicals to get the necessary information. If you require more information, contact the local office of the Ministry of the Environment. Remember,

**IT'S IN
YOUR
HANDS**

	POISON CONTROL CENTRE
	DOCTOR
	POLICE or FIRE DEPT

APPENDIX M: APPLICATION CHECKLIST


To ensure a timely review of your application please ensure that you have supplied the following.

MAPS Two (2) maps showing:


(1) the treatment area:


- (i) **Ponds:** length, width and average depth and all intakes and outflows (within or beyond property boundaries) or
- (ii) **Lakes:** length along the shoreline for each property to be treated, width (distance into the lake), average depth and location of any docks, islands, water intakes or distinguishing features. In the case of multiple property permit applications the treatment areas must be numbered and identified on the maps to match a corresponding list of name and addresses.


(2) access to the property from main road.


 **SIGNATURES FOR MULTIPLE PROPERTY PERMIT APPLICATIONS:** The name and address and an original signature for all applicants must accompany the application in an attached list. These names and addresses must be numbered and correspond to the numbers indicated on the maps where the treatment is to take place.


 **SIGN AND DATE OF THE APPLICATIONS:** The authorizing signature on the application must be the same name as the applicant, or the exterminator who will be performing the extermination.


 **STATEMENT FOR MULTIPLE PROPERTY PERMIT APPLICATIONS:** A statement must be included to show that the applicant will not be paid for carrying out the extermination, unless the treatment is to be carried out by a licensed exterminator.

 **DECLARATION FOR TREATMENT INVOLVING PUBLIC OR COMMON USE AREAS:** A declaration authorizing the applicant to treat the property on behalf of the association. This letter from the association should state that he/she has the support of the association members and has authority to give consent on everyone's behalf to authorize the treatment. This letter should be signed by an officer of the association, usually the president.

 **BODY OF WATER:** This must be a name which is accepted by the municipality (i.e. "Buckhorn Lake", not "Wanda's Bay")

 **LOCATION:** The lot and concession number, township and county section must be completed. The lot number must be based on municipal lots not subdivision or registered plan lots.

 **PEST NAME:** It is desirable that the species involved be cited. However, reference to submerged or emergent weeds will be accepted (particularly in the case of lakes).

 **NUMBER OF PROPERTIES:** This number must correspond to the number of treatment areas specified on the maps, and to the addresses and original signatures in the case of a multiple property permit.

☞ **WATER USES:** Water uses of particular concern are swimming, drinking, livestock watering and/or irrigation as use restrictions may be imposed for the use of particular chemicals.

☞ **LICENCE NUMBER:** When the treatment will be carried out by a licensed exterminator, please ensure that his/her licence number is given on the application, as well as his/her name.

APPENDIX N: SUGGESTED NOTICE FORM

All adjacent owners, lessees or organizations **must be notified** a minimum of 48 hours prior to the commencement of the treatment. It is recommended that this notification is in written format and would include information regarding the treatment time and the restrictions on water use imposed by the pesticides label. A suggested notice form is as follows

HERBICIDE APPLICATION

In Accordance with the Conditions of a Permit issued by the Ontario Ministry of Environment, this is to provide notice that I intend to use a herbicide in the water to control aquatic plants

Name of Pesticide Applicator: _____ Phone: _____

Location of Treatment Area: _____

Date of Treatment: _____ Time of Treatment: _____

Herbicide: **Reglone - A** Active Ingredient: **Diquat** P.C.P. #: **9512**

The product Label requires the following restriction. **Do not use treated water for at least 24 hours after treatment for swimming or animal consumption. For irrigation or human consumption do not use for at least 5 days after treatment.**

As a precaution, these restrictions are extended to the area adjacent to the treatment area.

I have been notified of the intended application of herbicide in the water near my property in accordance with the permit and product label and I realize my use of the water may be temporarily restricted.

Signature: _____ Date: _____

**Request for French Version Aquatic Package
Demande de Trousse en Français**

If you would prefer to receive future information packages in French please fill in this page and return to:

**Ontario Ministry of Environment
Standards Development Branch
135 St. Clair Ave. West,
TORONTO, Ontario M4V 1P5**

Your name will be added to our French mailing list.

Si, à l'avenir, vous préférez recevoir les troussees d'information en français, veuillez completez et faire parvenir ce formulaire à:

**Ministere de l'environnement
Direction de l'élaboration des normes
Section des pesticides
135 avenue St. Clair ouest
TORONTO, Ontario M4V 1P5**

Votre nom sera ajouté à la liste des personnes qui désirent recevoir la correspondance en français.

**Request for French Version Aquatic Package
Demande de Trousse en Français**

Nom: _____

Adresse: _____

Ville: _____ Province: _____

Code postal: _____

